



The Business Case for Greening the OR™

WHY FOCUS ON THE OPERATING ROOM?

The operating room is critical to a hospital's success, and to its business model—bringing in between 40-60% of the organization's revenue^{1,2} and up to 60% of its operating margin in some instances.³ The OR is also a significant cost center. It is the leader in medical supply usage for the entire hospital,⁴ estimated to account for approximately 33 percent of all hospital supply costs,⁵ and has large cost requirements relative to energy use and waste management.

But hospitals across the country are demonstrating that there are ways to cut costs in the OR while reducing the environmental footprint of the department.

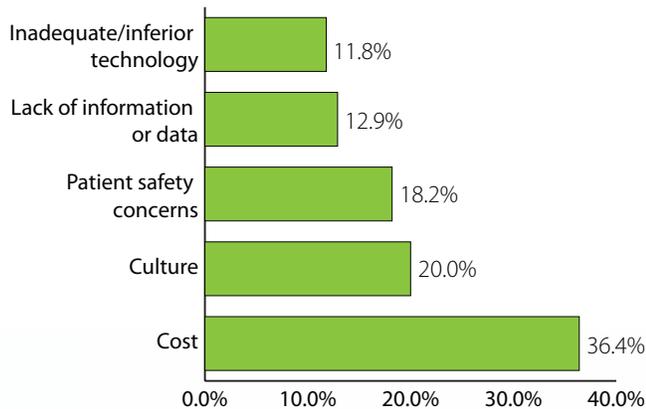
- MetroWest Medical Center saved an estimated \$29,843 and was able to reduce its waste stream by 5,606 lbs of disposable blue wrap in 2010 as a result of transitioning 66% of its surgical instrumentation to reusable rigid sterilization containers in the OR.
- Bon Secours Good Samaritan Hospital, a 377-bed facility in Suffern, NY, installed a system for fluid management in the operating room avoiding the creation of 261,999 lbs. of waste and saving \$86,460 in 2010.
- Hospital Corporation of America (HCA) and its 163 member hospitals realized \$17.6 million in savings in 2010 by reprocessing medical devices and avoided placing 298 tons of waste into landfills.

Greening the OR™ is a new initiative—led by Practice Greenhealth—to coalesce and build the body of knowledge around environmental best practices in the OR that can also improve patient safety, worker health and the bottom line. A number of hospitals have made significant advancements in identifying green best practices in the OR, but until now, no one has stepped in to make those best practices accessible in one place, nor facilitate the kinds of dialogue needed to drive green innovation in the OR forward.



Practice Greenhealth asked hospitals the following question:

Overall, what are the biggest challenges to implementing 'green' interventions in your organization's ORs?



The resulting data demonstrates the need to frame this issue for the sector and increase the published literature substantiating green best practices in the OR. While some green practices do require capital investments, many do not and can generate significant cost-savings. Tackling OR culture, while difficult, is possible when you have strong data to base decisions upon, peer hospitals who can model best practices, and leadership from within the OR. Patient safety must and will remain paramount in any discussion of alternate practices or products. This business case will lay out the rationale for the integration of green, sustainable best practices in the OR, and will demonstrate how OR departments at leading hospitals are beginning a new dialogue with sustainability leaders, the supply chain and service providers about how to create collaborative solutions to today's sustainability challenges that can not only save critical healthcare dollars that can be rediverted into patient care, but can also improve patient and worker safety while being a better community steward.

Practice Greenhealth is using a dynamic, collaborative approach that brings together a variety of stakeholders to define a set of data-driven, science-based, best practices in the OR that reduce environmental impact, reduce cost, increase efficiency, and improve worker and patient safety—or some combination of these. The Initiative is focused on engaging key stakeholder groups relevant to the OR to ensure that best practices are being discussed and vetted through the appropriate channels and driven by all available data.

The Initiative has the potential to significantly impact the supply chain—hospitals, health systems and group purchasing organizations are working with Practice Greenhealth to leverage the purchasing power of the healthcare sector to drive product and process innovation. The healthcare supply chain is also a critical partner in the exploration of new and innovative ways to address old and unsustainable practices, products and services. Companies today are increasingly recognizing that green products make good business sense—for the long term, and are engaged and interested in strategic thinking and dialogue with healthcare customers about creating better solutions. Indeed, many of these companies have demonstrated their willingness to try innovative approaches to identifying synergies and even collaborations across company lines to meet the needs to hospital customers.

Those responsible for designing and constructing the hospitals of the future are also a key element in this conversation—as the green operating room of the future goes beyond product selection to think about integrated design teams, engineering, safer materials selection and technology integration.

Perceptions persist that green programs and products cost more despite comprehensive evidence to the contrary. Learn more about how environmental best practices in the OR are a mechanism to reduce cost while also engaging staff in a new dialogue about how to increase efficiencies at the organization.

Deliver quality patient care utilizing practices and products that are safe for patients, workers and the environment while minimizing costs.

Greening the OR™ is a sector-wide initiative that will provide administrators and OR managers with the tools necessary to reduce environmental impact while driving down costs.



BEST PRACTICE #1: RMW Segregation in the OR

Leading hospitals have demonstrated that an early focus on waste segregation in the OR can demonstrate significant reduction of the infectious waste stream while also generating big dollar savings relative to the hospital's waste budget. Specific implementation strategies vary but emphasis is placed on diverting clean, sterile packaging and non-infectious waste (per state definition) into either solid waste or recycling containers.

- "Inova Fairfax Hospital, an 833-bed hospital in Northern Virginia, decreased the regulated medical waste being generated by its ORs by 18.6% over just a 6-month period, saving the hospital more than \$15,000 and promising far greater savings long-term."

Seema Wadhwa LEED AP, Sustainability Engineer, Inova Health System/Sustainability Director, Urban Ltd, Fairfax, VA

- "In 2010, our Waste Management Team achieved a 47% reduction in regulated medical waste, reducing 28,795 pounds of waste by initiating a targeted focus on RMW reduction in our ORs and Labor & Delivery. Cost savings due to red bag waste reduction were in excess of \$89,000."

Judith Focareta, Coordinator, Environmental Health Initiatives, Magee-Womens Hospital of UPMC, Pittsburgh, PA

BEST PRACTICE #2: Divert and Purchase Reprocessed Medical Devices

Hospitals are finding that partnering with a third party reprocessor to reprocess medical devices are an important element in responsible stewardship of the organization's financial resources. Programs to collect certain FDA-eligible medical devices in the OR for reprocessing and then purchase back the reprocessed devices are generating huge cost-savings and significant waste reductions for a variety of organizations. More than 70% of hospitals nationwide now reprocess some or all of their FDA-eligible medical devices.⁶

- "The University of Washington Hospitals in Seattle, WA diverted 5.8 tons of waste and saved the organization \$496,123 in 2008 by reprocessing more than 100 different single-use medical devices."

Sheila Jobe-Lockwood, Compliance Outreach Coordinator, Environmental Health & Safety, University of Washington Medicine, Seattle, WA

- "Through reprocessing of medical devices, Advocate Christ Medical Center was able to save \$400,000 and avoided sending almost 5 tons of waste to the incinerator or landfills in 2010."

Mary Larsen MS, Environmental Stewardship Manager, Advocate Health Care, Chicago, IL

BEST PRACTICE #3:

Fluid Management Systems in the OR

Hospitals are eliminating staff exposure to bloodborne pathogens and minimizing regulated medical waste (RMW) disposal costs by moving to fluid management systems in the OR. Fluid management systems automate the process of flushing blood and body fluids to the sanitary sewer, reducing the need for staff to manually empty suction canisters or use expensive solidifiers to dispose of suction canisters to RMW. Many also utilize a reusable or integrated canister that is cleaned and reused, lowering ongoing supply costs.

- "Bronson Methodist Hospital implemented a fluid management system in 2003. In 2010, this technology allowed Bronson to save approximately 8 tons of regulated medical waste and plastic suction canisters at a savings of \$7,200."

Lisa Hardesty, EOC and Sustainability Manager, Bronson Methodist Hospital, Kalamazoo, MI

- "In 2007, St. Mary's Hospital Medical Center (an affiliate of Hospital Sisters Health System) instituted a fluid management system that reduces its regulated medical waste by 5,400 lbs each year at an annual cost savings of over \$10,000 dollars."

Ronald VanSchyndel, EVS 1st Line Supervisor, St. Mary's Hospital Medical Center, Green Bay, WI



Perioperative staff at MetroWest highlight the rigid sterilization containers used in the OR and Sterile Processing.

BEST PRACTICE #4: Medical Plastics Recycling in the OR

The OR might be the last place you'd expect to find a recycling container, but hospitals are increasingly partnering with their waste haulers to identify appropriate medical plastics for diversion to recycling markets. While a large portion of OR supplies are disposable and packaging is ubiquitous, facilities are surprised to find the vast majority of medical plastics generated in the OR are recyclable with the right hauling partner. As several of the country's largest waste haulers develop integrated waste solutions focused on servicing all of a hospital's waste streams, access to medical plastics recycling in the OR is growing rapidly. Partnered with a focus on better segregation of infectious waste, this program can derive real financial savings.

- "Fletcher Allen Medical Center achieved a 38% recycling rate in 2010. The nursing staff in the OR have been initiators of Fletcher's OR recycling program which collects approximately 50 tons of recycling annually at a savings of approximately \$6000."

Louis Dinneen, Director, Facilities Management, Fletcher Allen Medical Center, Burlington, VT

- "Spectrum Health in Grand Rapids, MI initiated a medical plastics recycling program in its 45 ORs in 2007. In 2010, the OR recycled 42,500 lbs of Blue Wrap, saving \$1,300 in avoided waste costs. The blue wrap program is part of Spectrum Health's larger hospital recycling initiative that since 2007 has saved nearly \$200,000 and reduced waste bound for the landfill by 2,943 tons."

Josh Miller, Sustainability Coordinator, Spectrum Health, Grand Rapids, MI

BEST PRACTICE #5: Reusable Gowns, Textiles and Basins in the OR

The culture of waste in the OR is driven in large part by the increasing volume of disposable medical supplies on the market today. Many hospitals—after jumping on the disposables bandwagon—are beginning to rethink the use of reusable textiles and supplies in the OR. Reusable surgical textiles are demonstrating increased clinician satisfaction while also providing comparable barrier protection. And reusable table and mayo stand covers, surgical towels and basins are common sense switches that drive down costs by reducing the volume of waste generated.

- The University of Maryland Medical Center moved to reusable textiles in the OR more than 15 years ago, and utilizes a vendor to provide clean, sterilized surgical textiles. In 2010, UMMC avoided the creation of 138,748 pounds of waste as a result of using reusable textiles in the OR, demonstrating an estimated cost-savings of \$38,849⁷ in avoided waste disposal costs, and an estimated \$39,000 in returned instruments.

Victoria Stewart, MBA, Business Director, Perioperative, Endoscopy and Rehab Services, University of Maryland Medical Center, Baltimore, MD

- "Kaiser Permanente's use of reusable surgical gown and basin sets reduced the organization's regulated medical waste by 30 tons, at a savings of 3.8% in 2010."

Andrew Knight, Senior Sourcing Director, Kaiser Permanente, San Diego, CA

BEST PRACTICE #6: Reusable Hard Cases for Surgical Instrumentation

Hospitals purchase large volumes of blue sterile wrap for sterilization of kits in preparation for the OR. Blue wrap is not reusable and immediately becomes waste in the OR during procedure set up. While recycling of blue wrap is available in some areas, the supply costs relative to replacing used material continue. Innovative hospitals have begun a transition from disposable blue wrap to the use of reusable rigid sterilization containers for surgical instrumentation. The cases can be reused continually, driving down the purchase of blue wrap and the associated waste disposal costs while still protecting sterility and function of the instrumentation.

- Mills-Peninsula Medical Center, a 413-bed hospital in Burlingame, CA purchased rigid sterilization containers for the organization in 2006 at a cost of \$34,987. They were able to avoid blue wrap purchases of \$25,173 and save \$26,000 in rewrapping costs for torn blue wrap sets, making the payback 8.2 months with an additional cost-savings of \$16,186 in one year without even tallying waste avoidance costs into the equation.

Gail Lee, past Director, Environmental Health & Safety, Mills-Peninsula Medical Center, Burlingame, CA

- Boulder Community Hospital purchased \$150,000 of rigid sterilization containers for the OR in 2003 and over two years, reduced blue wrap purchase from \$250,000 to \$60,000 annually—less than a two year payback. BCH has saved over \$1 million in avoided supply costs since 2003 as a result of the program.

Kai Abelkis, Sustainability Coordinator, Boulder Community Hospital, Boulder, CO

BEST PRACTICE #7:

OR Kit Reformulation

ORs routinely dispose of items included in OR kits that are never used during the procedure. OR staff in leading hospitals are working with physicians to review preference cards—and in some cases, audit surgeries—to determine where unneeded or excess items may be making their way into the kits and routinely are disposed of as waste rather than utilized during the procedure. Streamlining custom kits, reviewing preference cards, and standardizing both the number and type of items included (as much as possible) can result in decreased inventory, reduced supply costs and avoided waste disposal fees. While this best practice tackles entrenched behavior and OR culture head on, it is very feasible to implement with cooperation from surgical staff.

- “The University of Minnesota Medical Center-Fairview, saved an estimated five tons of waste and \$116,000 dollars in 2010 through its surgical pack reformulation efforts.”

Crystal Saric, Coordinator of Waste Services and Waste Reduction, Fairview Health Services, Minneapolis, MN

- “In collaboration with its vendor, Mayo Clinic Surgery in Rochester, MN reviewed and reformulated its custom packs in the OR in an effort to reduce both waste and cost, saving nearly \$125,000 in avoided supply costs with the new kits since April of 2009.”

Kevin T. Hovde, C.P.M., Supply Chain Mgmt Performance Consulting Lead Senior Analyst – Surgery, Mayo Clinic, Rochester, MN

Thomas J. Louks, Hospital Surgical Services Finance Specialist, Mayo Clinic, Rochester, MN

BEST PRACTICE #8:

OR Setback Programs for HVAC for Unoccupied ORs

ORs have the highest requirements for air changes per hour, require strict temperature parameters and use energy-intensive (and often heat-generating) surgical lighting systems. Often these systems run all night—even when the OR is unoccupied. Forward-thinking hospitals are evaluating OR setback mechanisms to decrease air changes and/or turn out the lights during these unoccupied hours as a means of reducing both energy and cost. Other hospitals have replaced heat-generating halogen lighting with LEDs or have adjusted temperature fluctuation to a setpoint to increase efficiency.

- “By moving to HVAC occupancy sensors in two of its new digitally controlled ORs, Providence St. Peter Hospital in Olympia, WA reduced its energy use by 25,000 kWh and 2,460 Therms and is saving \$4,000 dollars per year.”

Keith Edgerton, Sustainability Coordinator, St. Peter Hospital and Providence Southwest Washington Service Area

- “By increasing the temperature in Advocate Illinois Masonic Hospital’s operating rooms from an average of 64 degrees, to an average of 70 degrees, we saved \$72,000 per year in patient warming devices. Eliminating the need to pre-cool the operating rooms yielded a significant energy savings as well.”

York Chan, Administrator, Facilities Services Advocate Health Care, Chicago, IL

BEST PRACTICE #9:

Reusable Sharps Container Systems

Instead of buying disposable sharps containers that go into the infectious waste stream and drive up waste costs while also requiring ongoing replacement, hospitals are moving to reusable sharps container systems. The full containers are typically collected by a service provider who mechanically empties them (reducing exposure for workers at the same time), cleans and disinfects them and returns them to the hospital for reuse. Containers are often used hundreds of times, driving down both waste and replacement supply costs—a win-win.

- “Borgess Medical Center, a 450-bed hospital in Kalamazoo, MI made the switch to reusable sharps containers in 2007. The transition has enabled Borgess to reduce its regulated medical waste by 10.5 tons at savings of \$11,000 dollars annually.”

Eric Buzzell, Executive Director, General Services & Property Management, Borgess Medical Center, Kalamazoo, MI

- “The reusable sharps container program at Illinois Masonic Hospital (an affiliate of Advocate Health) reduced its regulated medical waste by 10 tons and saved the organization \$13,000 dollars in 2010.”

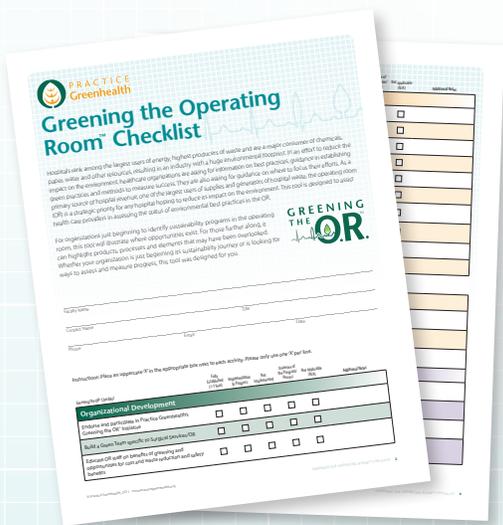
Steve Verzi, Safety Coordinator, Advocate Illinois Masonic Hospital, Chicago, IL





How Can the Greening the OR™ Initiative Assist Your Facility?

The Greening the Operating Room™ Initiative is designed to let healthcare organizations play at the level they feel comfortable. Participation is free and there are a myriad of resources—evolving every day—that can assist your facility in learning more about different best practices. The initiative is a dynamic learning community where you can hear about other hospitals' successes, strategize around barriers to implementation and engage the supplier community to create new solutions to today's issues. Learn a bit more about some of the educational opportunities offered by the initiative.



Checklist

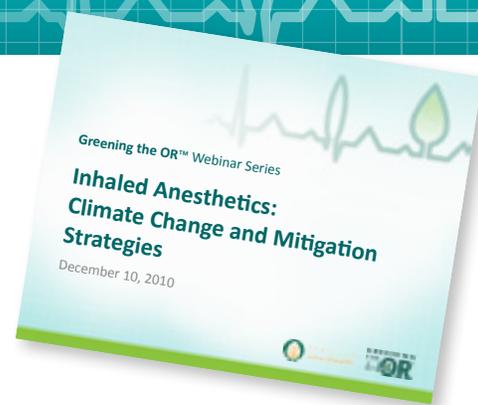
Want to get a sense of how far along your facility is in greening its operating rooms? Use this checklist to do a self-audit. You may be surprised by how many best practices you already have in place or may encounter all kinds of new best practices to explore.

Sharing Calls

Want to learn more about a new program but don't see it on the webinar calendar or have a more immediate need for additional information? Hospitals formally participating in the initiative (and all Practice Greenhealth members) can request a sharing call. Staff will put out a call request inviting other hospitals to come and share their experience with that particular program. Calls are facilitated by Practice Greenhealth but are largely informal opportunities for sharing advice, resources and strategies.

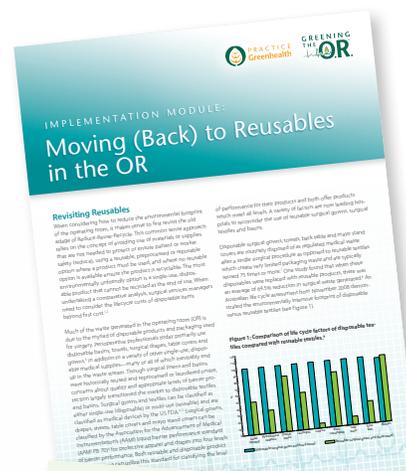
Webinars

Practice Greenhealth began a Greening the OR™ webinar series in 2011. Webinars are free to all facilities formally participating in the initiative and to all Practice Greenhealth members. Each month, the series focuses on a different best practice and shares real-time case studies from participating hospitals. Webinar calendar available at: www.GreeningTheOR.org.



Implementation Modules

Practice Greenhealth is rolling out a series of implementation modules as part of the Greening the OR™ Initiative. These multi-step resource guides walk interested hospitals through the steps necessary to explore, build and implement different sustainable best practices in the OR. For a complete list of current modules, go to: www.GreeningTheOR.org



Case Studies

Practice Greenhealth is writing a series of case studies featuring organizations participating in the Greening the OR™ Initiative. Practice Greenhealth realizes the value of data-driven case studies that share the experiences and successes of other healthcare organizations in implementing sustainable best practices. Learn how other hospitals have organized their implementation efforts or overcome key barriers. Practice Greenhealth also makes case studies from other sources available on its website to give participants the widest range of resources possible. For a recent list of case studies on different sustainable best practices in the OR, go to: www.GreeningTheOR.org



Greening the OR™ Calculators

Making the business case for a specific sustainable practice can be challenging if you don't know how to frame the data and make the cost-benefit analysis. Practice Greenhealth is working with hospitals and the healthcare supply chain to provide a series of calculators that will allow healthcare organizations to accurately estimate the kinds of financial savings and environmental benefits they can expect to realize. Learn more at www.GreeningTheOR.org.

Council for Environmentally Responsible Surgery (CERS)

Practice Greenhealth recognizes the critical role that physicians in the operating room can play in determining the success (or failure) of new best practices. The Council is a new initiative aimed at engaging surgeons, other physicians who perform surgery and anesthesiologists to explore the needs of this community relative to substantiating and driving best practices.



How to Participate

The Greening the OR™ Initiative is bringing together a cross-section of the healthcare sector to explore and demonstrate that ORs are identifying strategies to reduce their environmental impact while searching for ways to do it safely and cost-effectively.

Learn how you can join the community.

Endorse the Initiative.

Healthcare facilities and ambulatory surgery centers can participate in the initiative by filling out a simple commitment form. **There is no fee to participate.** The commitment form provides a menu of options—offering facilities different ways to participate in the initiative. From sharing calls with other hospitals to the Greening the OR™ Webinar Series to opportunities to highlight your organization's successes at conferences and to the media—Practice Greenhealth is committed to building a vibrant learning community. Learn more at: www.GreeningTheOR.org

Sponsor the Initiative.

This initiative is about reaching across company lines and innovating sustainable strategies to address today's OR challenges. Is your company ready to be part of the solution? Learn how you can get involved in Greening the OR™ activities by contacting:

Robert Jarboe

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Endnotes

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- 6 Williamson, JE. *Waste reduction: ways to get leaner and greener in the SPD*. Healthcare Purchasing News. April, 2008. Accessed on March 17, 2011. Available at: http://findarticles.com/p/articles/mi_m0BPC/is_4_32/ai_n25151368/?tag=content;col1
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The Greening the OR™ Initiative is defining best practices in the OR to reduce environmental impact, reduce cost, increase efficiency, and improve worker and patient safety. Practice Greenhealth is grateful for the support of a number of sponsors of the Greening the OR™ Initiative. For a complete list, please visit: www.GreeningTheOR.org



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